

GOAL DEVELOPMENT AND SYSTEM RECOMMENDATIONS

Each of the seven MASP system goals has undergone a series of alternatives analysis resulting in a recommendation for the ultimate airport system for each goal in the year 2020. Alternative development involved establishing and testing various combinations of service standards for each system goal. Included for each alternative was a variety of surface travel time, minimum airport classification, and service thresholds. Surface travel time combinations tested included 15, 20, 30, and 45 minutes for many of the system goals. Generally, a surface travel time of 30 minutes resulted in a system that appropriately responsive. Service threshold combinations were tested at 90, 95 and 100 percent. In most cases a 90 percent service threshold left too many holes in the system; and a 100 percent threshold resulted in a system that would be overbuilt. Results of that analysis, including a summary of how well the current system is responding to future needs are presented for each system goal in the following section of the MASP report.

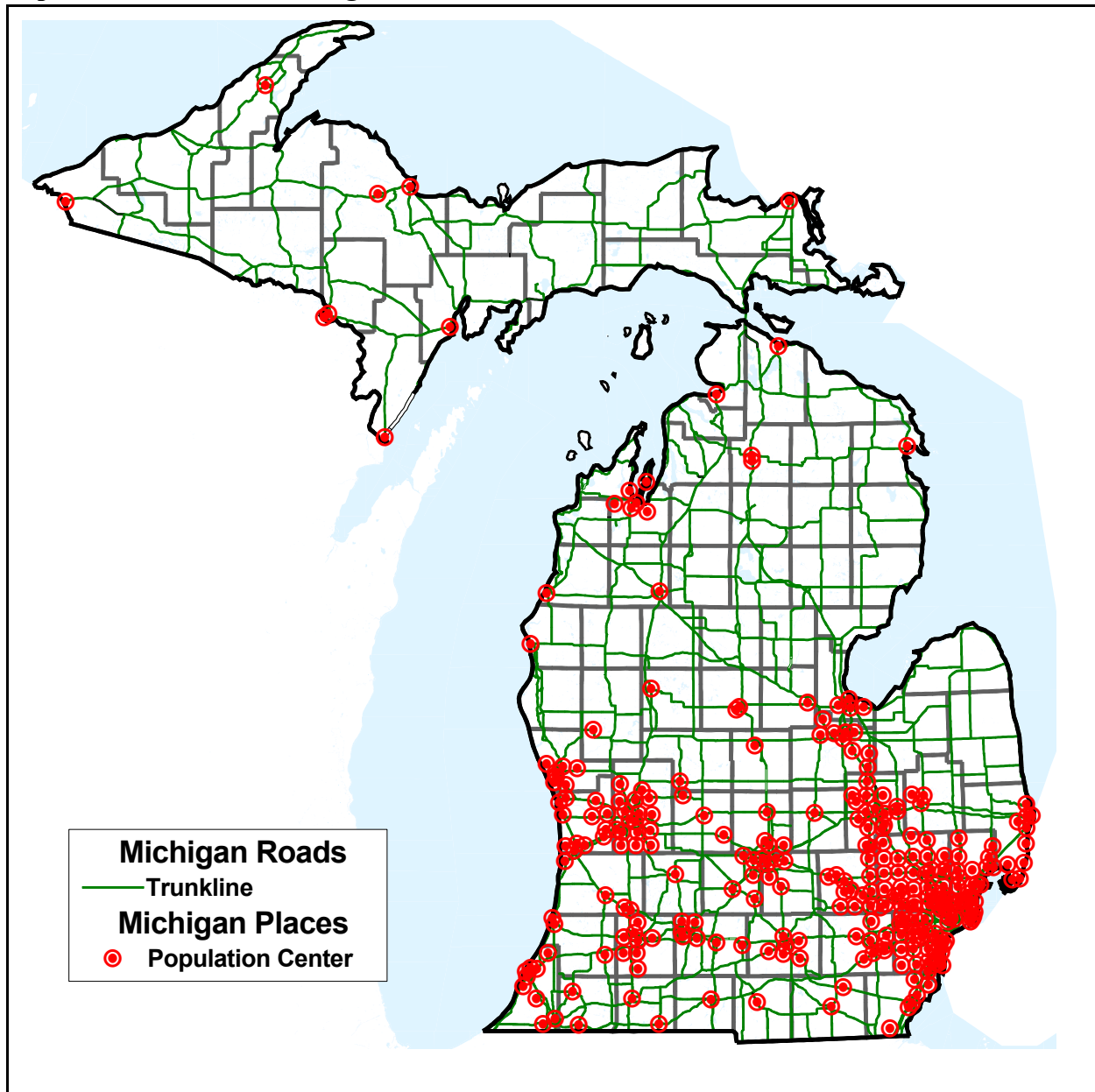
Serve Significant Population Centers

Goal: Provide service to significant population centers through year-round general aviation facilities.

Background: Population centers are defined as a minor civil division (MCD) of 5,000 or more people with a population density of 250 or more per square mile. In 1995 there were 246 population centers meeting this criteria. The 2020 forecast indicates that there will be 295 population centers meeting this criteria. Map 2 identifies the location of the population centers in 2020.

Map2

Population Centers in Michigan, 2020



System Standards: The population centers system standard relates to the proximity of an airport to a population center, the minimum classification of airport needed to adequately respond to population centers and the performance target percent for population centers to be served by those airports. Table 12 summarizes the system

standards for population centers.

Table 12 System Standards: Population Centers	
Surface Travel Time	30 minutes
Minimum Airport Classification	C-II
Tier 1 Performance Target	95 percent
Tier 2 Performance Target	100 percent

As described previously, the statewide travel demand model is the analytical tool used to determine the proximity of airports to population centers. That tool was used to determine the service area coverage of all candidate airports and the number and size of population centers served by those airports. In summary, population centers in Michigan should be served within 30 minutes surface travel time by airports in the C-II classification. Those airports needed to respond to 95 percent of the population centers are included in Tier 1; with the airports needed to respond to 100 percent of the population centers included in Tier 2.

System Recommendation: To the extent possible, airports that were currently serving population centers and developed to the proper minimum airport classification were selected for inclusion in the population center alternative. Additional airports to be included in Tier 1 were selected based on a combination of population center size, remoteness from a previously included airport, and the number of additional population centers that would be served. The airports selected for inclusion in the preferred alternative and their 30 minute surface travel time are displayed in Map 3. Among the 32 airports included in Tier 1 for population centers are three airports that would require a reclassification to the C-II category. These airports are...

- ☐ Adrian, Lenawee County Airport
- ☐ Greenville Municipal Airport
- ☐ Howell, Livingston County Airport

The other 29 airports currently meet the C-II airport classification standard. All 32 Tier 1 airports are identified in Table 14.

Map 3
Population Centers: Tier 1 Airport System

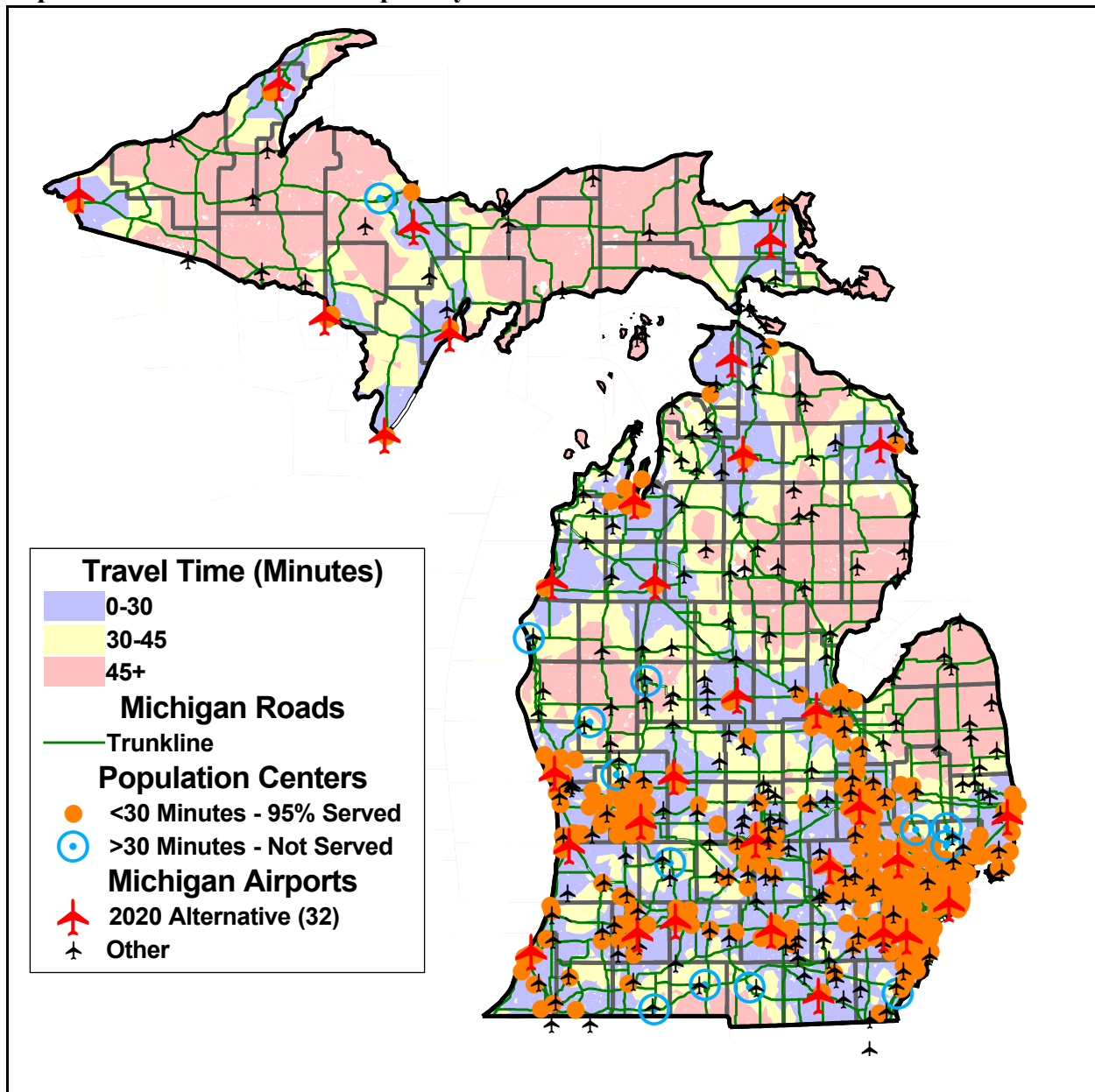


Table 13
Tier 1 Airport System: Population Centers

Minimum Airport Classification Standard: C-II

City	Airport	Current Class
Adrian	Lenawee County	B-II
Alpena	Alpena County Regional	D-III
Battle Creek	W.K. Kellogg	D-III
Benton Harbor	Southwest Michigan Regional	C-III
Cadillac	Wexford County	C-II
Detroit	Detroit City	C-III
Detroit	Detroit Metro Wayne County	D-III
Detroit	Willow Run	D-III
Escanaba	Delta County	D-III
Flint	Bishop International	D-III
Gaylord	Otsego County	C-III
Grand Rapids	Kent County International	D-III
Greenville	Greenville Municipal	B-II
Hancock	Houghton County Memorial	D-III
Holland	Tulip City	C-III
Howell	Livingston County	B-II
Iron Mountain	Ford	D-III
Ironwood	Gogebic-Iron County	D-III
Jackson	Jackson County-Reynolds	C-III
Kalamazoo	Kalamazoo/Battle Creek Intl.	D-III
Lansing	Capital City	D-III
Manistee	Manistee County-Blacker	C-II
Marquette	Sawyer	D-III
Menominee	Menominee-Marinette Twin City	C-III
Mt. Pleasant	Mt. Pleasant Municipal	C-II
Muskegon	Muskegon County	D-III
Pellston	Pellston Regional of Emmet Co.	D-III
Pontiac	Oakland County International	D-III
Port Huron	St. Clair County International	C-III
Saginaw	M B S International	D-III
Sault Ste. Marie	Chippewa County International	D-III
Traverse City	Cherry Capital	D-III

Those airports required to achieve a 100 percent population center coverage are designated in Tier 2 and include the ten airports identified in Table 14. Seven of these airports do not currently meet the C-II Airport Classification for population centers.

Table 14 Tier 2 Airport System: Population Centers Minimum Airport Classification Standard: C-II		
City	Airport	Current Class
Big Rapids	Roben-Hood	B-II
Coldwater	Branch County Memorial	B-II
Fremont	Fremont Municipal	C-II
Hastings	Hastings City/Barry County	B-II
Hillsdale	Hillsdale Municipal	B-II
Ludington	Mason County	B-II
Monroe	Monroe Custer	C-II
Romeo	Romeo	B-II
Sparta	Sparta	B-II
Sturgis	Kirsch Municipal	C-II

Goal Achievement Summary: The system of airports identified in Table 15 results in the following level of performance achievement.

Table 15 Goal Achievement Summary: Population Centers	
Number of Tier 1 C-II Airports	32
Population Centers Served (percent)	95
Number of Tier 2 Airports	10
Population Centers Served (percent)	99+

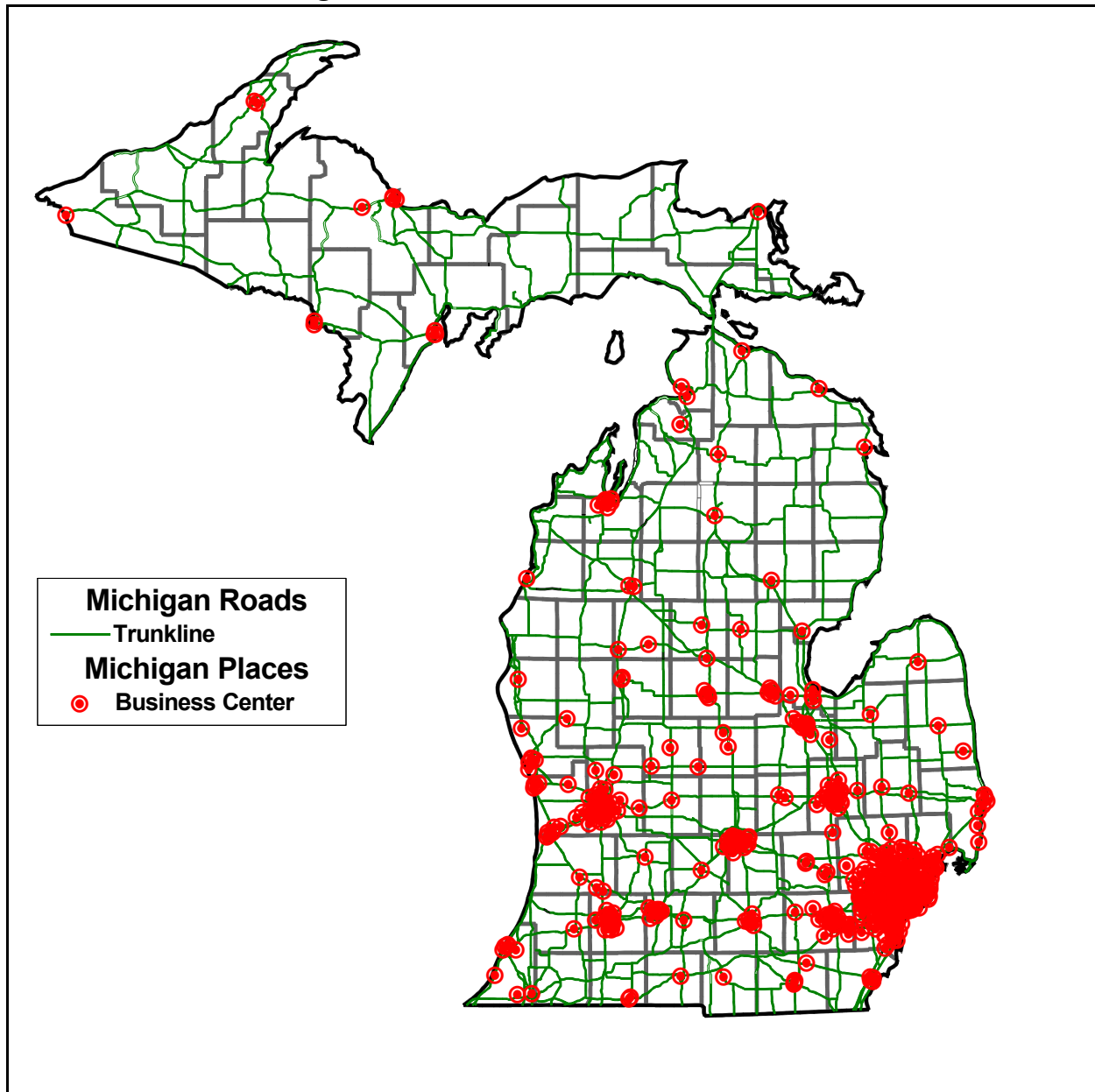
The 32 airports designated for inclusion in Tier 1 meet the target performance objective of 95 percent. The 10 airports included in Tier 2 results in all population centers being served with the exception of Ishpeming. This population center is marginally outside the 30 minute surface travel time for this standard being 31 minutes from Marquette, Sawyer Airport.

Serve Significant Business Centers

Goal: Support an airport system that adequately and effectively responds to the critical and essential business aviation needs of the state.

Background: Business centers in Michigan are defined as Travel Analysis Zones (TAZ) with 3,000 or more employees. There are forecasted to be 450 such zones in the year 2020 with 95 of those zones having 10,000 or more employees. These zones are concentrated in or near the state's major metropolitan areas. A number of zones are also located in or near many Michigan communities across the state. Map 4 displays the location of business centers in Michigan.

Map 4
Business Centers in Michigan, 2020



System Standards: Business centers system standards relate to proximity of an airport to a business center, the minimum classification of airport needed to adequately respond to business centers and the performance target percent for business centers to be served by those airports. Table 16 summarizes the system standards for business centers.

Table 16 System Standards: Business Centers	
Surface Travel Time	30 minutes
Minimum Airport Classification	C-II
Tier 1 Performance Target	95 percent
Tier 2 Performance Target	100 percent

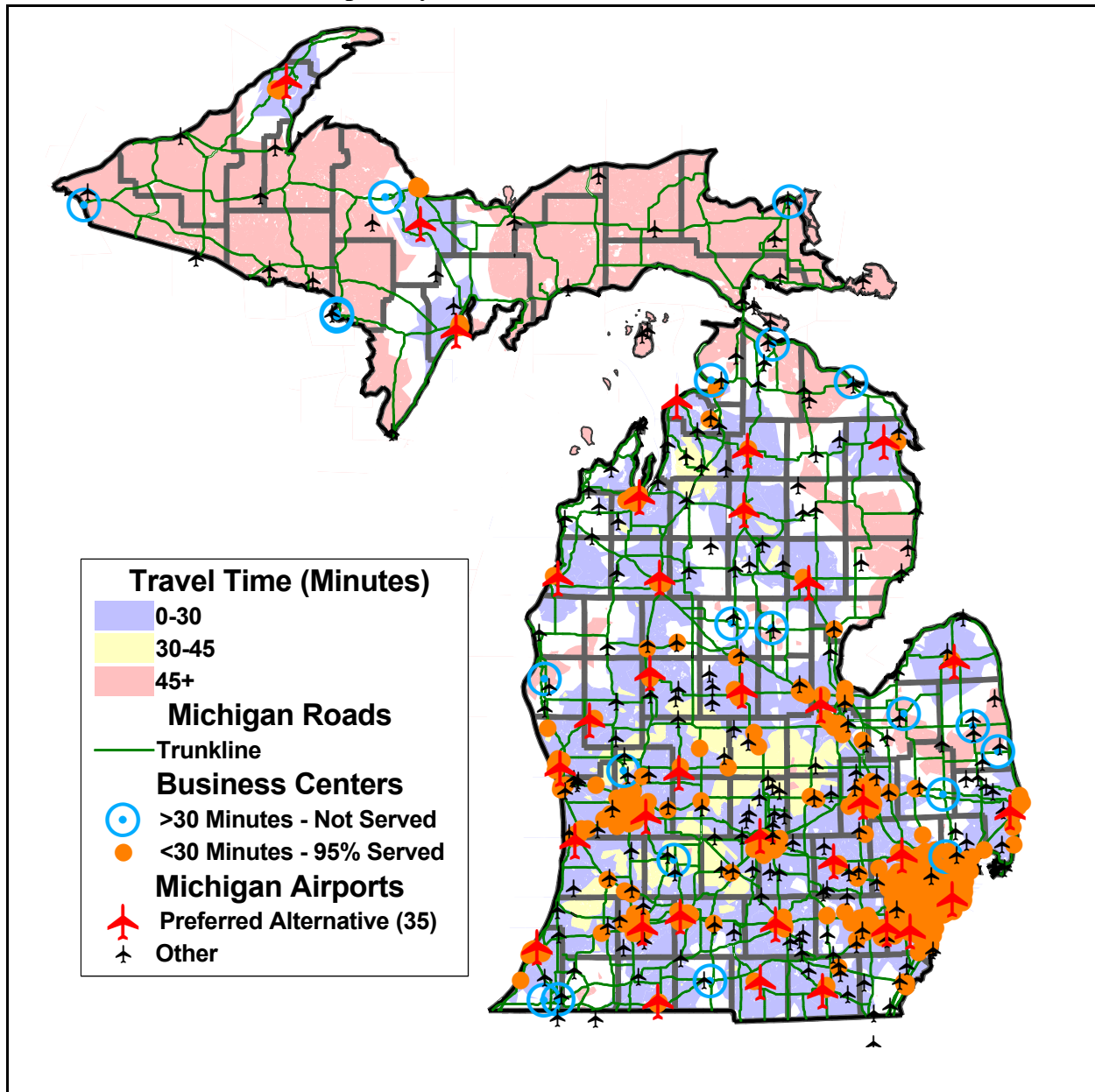
As described previously, the statewide travel demand model is the analytical tool used to determine the proximity of airports to business centers. That tool was used to determine the service area coverage of all candidate airports and the number and size of business centers served by those airports. In summary, business centers in Michigan should be served within 30 minutes surface travel time by airports in the C-II classification. Those airports needed to respond to 95 percent of the business centers are included in Tier 1; with the airports needed to respond to 100 percent of the business centers included in Tier 2.

System Recommendation: To the extent possible, airports that were already developed to the proper minimum airport classification were selected for inclusion in the business center alternative. Additional airports to be included in Tier 1 were selected based on a combination of business center size, remoteness from a previously included airport, and the number of additional business centers that would be served. Among the 35 airports included in Tier 1 for population centers are seven airports that would require a reclassification to the C-II category. These airports are...

- ☐ Adrian, Lenawee County Airport
- ☐ Bad Axe, Huron County Memorial Airport
- ☐ Big Rapids, Roben-Hood Airport
- ☐ Charlevoix Municipal Airport
- ☐ Greenville Municipal Airport
- ☐ Hillsdale Municipal Airport
- ☐ Howell, Livingston County Airport

Map 5

Business Centers: Tier 1 Airport System



The other 28 airports currently meet the C-II airport classification standard. All 35 Tier 1 airports are shown in Map 5 and identified in Table 17.

Table 17 Tier 1 Airport System: Business Centers Minimum Airport Classification Standard: C-II		
City	Airport	Current Class
Adrian	Lenawee County	B-II
Alpena	Alpena County Regional	D-III
Bad Axe	Huron County Memorial	B-II
Battle Creek	W.K. Kellogg	D-III
Benton Harbor	Southwest Michigan Regional	C-III
Big Rapids	Roben-Hood	B-II
Cadillac	Wexford County	C-II
Charlevoix	Charlevoix Municipal	B-II
Detroit	Detroit City	C-III
Detroit	Detroit Metro Wayne County	D-III
Detroit	Willow Run	D-III
Escanaba	Delta County	D-III
Fremont	Fremont Municipal	C-II
Flint	Bishop International	D-III
Gaylord	Otsego County	C-III
Grand Rapids	Kent County International	D-III
Grayling	Grayling Army Airfield	C-II
Greenville	Greenville Municipal	B-II
Hancock	Houghton County Memorial	D-III
Hillsdale	Hillsdale Municipal	B-II
Holland	Tulip City	C-III
Howell	Livingston County	B-II
Jackson	Jackson County-Reynolds	C-III
Kalamazoo	Kalamazoo/Battle Creek Intl.	D-III
Lansing	Capital City	D-III
Manistee	Manistee County-Blacker	C-II
Marquette	Sawyer	D-III
Mt. Pleasant	Mt. Pleasant Municipal	C-II
Muskegon	Muskegon County	D-III
Pontiac	Oakland County International	D-III
Port Huron	St. Clair County International	C-III
Saginaw	M B S International	D-III
Sturgis	Kirsch Municipal	C-II
Traverse City	Cherry Capital	D-III
West Branch	West Branch Community	C-II

Those airports required to achieve a 100 percent population center coverage are designated in Tier 2 and include the 15 airports identified in Table 18. Of these airports, 12 do not currently meet the C-II Airport Classification for business centers.

Table 18 Tier 2 Airport System: Business Centers Minimum Airport Classification Standard: C-II		
City	Airport	Current Class
Ann Arbor	Ann Arbor Municipal	B-II
Caro	Caro Municipal	B-II
Cheboygan	Cheboygan City-County	B-II
Coldwater	Branch County Memorial	B-II
Gladwin	Gladwin Zettel Memorial	B-II
Hart-Shelby	Oceana County	B-I
Hastings	Hastings City/Barry County	B-II
Iron Mountain	Ford	D-III
Ironwood	Gogebic-Iron County	D-III
Lapeer	DuPont-Lapeer	B-I
Niles	Jerry Tyler Memorial	B-II
Rogers City	Presque Isle County/Rogers City	B-I
Sandusky	Sandusky City	B-I
Sault Ste. Marie	Sault Ste. Marie Muni-Sanderson	C-II
Sparta	Sparta	B-II

Goal Achievement Summary: The system of airports identified in Table 19 results in the following level of performance achievement.

Table 19 Goal Achievement Summary: Business Centers	
Number of Tier 1 C-II Airports	35
Business Centers Served (percent)	95
Number of Tier 2 Airports	15
Business Centers Served (percent)	97

The 35 airports designated for inclusion in Tier 1 meet the target performance objective of 95 percent. The 15 airports included in Tier 2 results in 97 percent of business centers being served. All of the business centers not served in Tier 1 or Tier 2 are marginally outside of the 30 minute surface travel time. No business center in the state is more than 37 minutes from an airport designated in either Tier 1 or Tier 2.

Additionally, all large business centers, those with 10,000 or more employees, are served by the airports selected for inclusion in Tier 1.

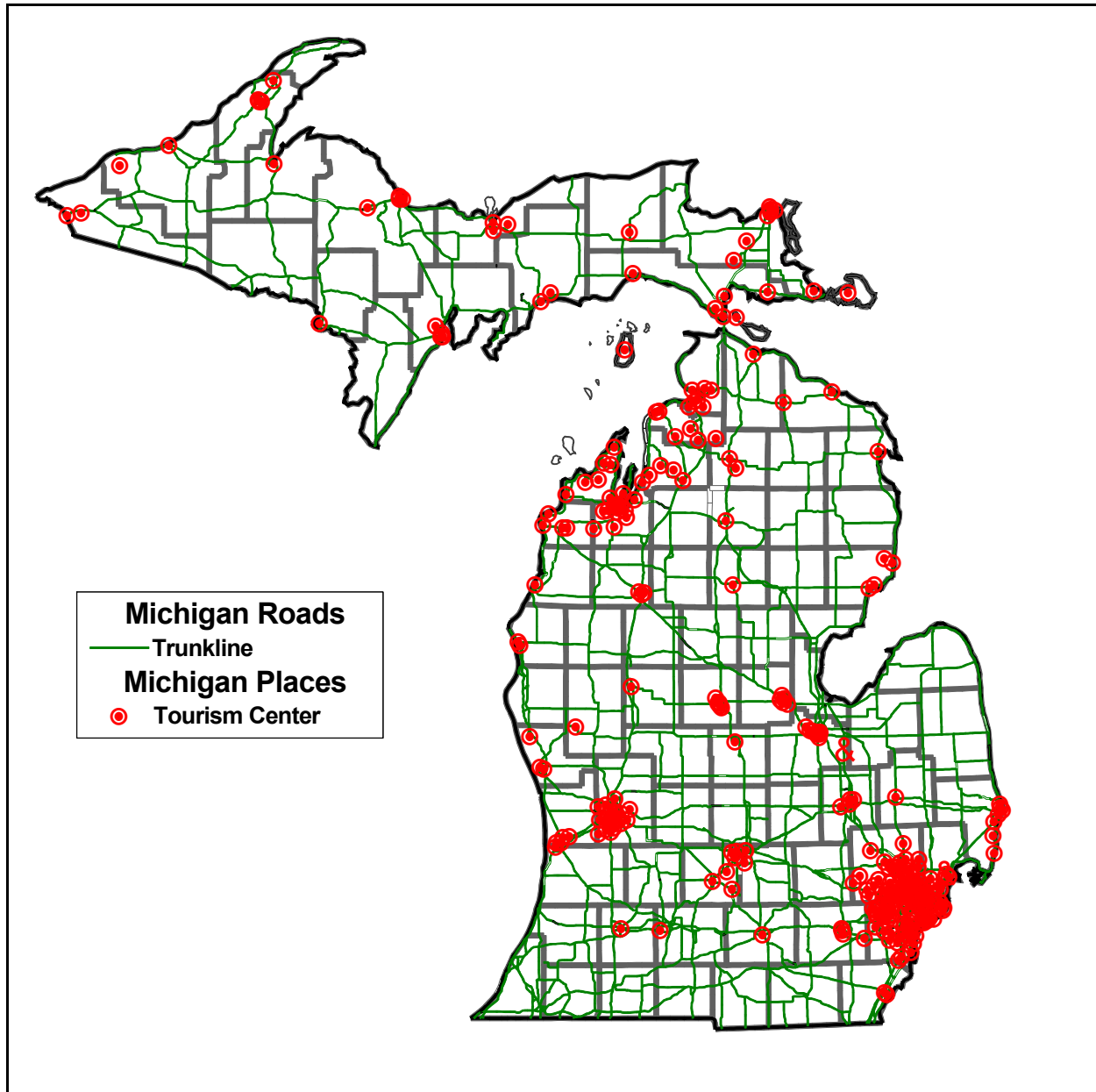
Serve Significant Tourism/Convention Centers

Goal: Support an airport system that adequately and effectively responds to the critical and essential tourism/convention aviation needs of the state.

Background: Tourism and convention centers in Michigan are identified by allocating lodging use taxes generated in each county to the travel analysis zones within each county based on TAZ employment as a percent of total county employment. TAZs with \$30,000 or more of annual lodging use tax generated as reported to the Michigan Department of Treasury are designated as tourism/convention centers. There are 293 tourism/convention centers in Michigan. Generally, these centers are located in or near major urbanized areas like Detroit, Grand Rapids and Lansing, or somewhat concentrated in the northwestern parts of the lower peninsula and eastern portions of the upper peninsula. Map 6 displays the location of tourism/convention centers in Michigan.

Map 6

Tourism/Convention Centers in Michigan, 1995



System Standards: Tourism/convention centers system standards relate to proximity of an airport to a tourism/convention center, the minimum classification of airport needed to adequately respond to tourism/convention centers and the performance target percent for tourism/convention centers to be served by those airports. Table 20 summarizes the system standards for tourism/convention centers.

Table 20 System Standards: Tourism/Convention Centers	
Surface Travel Time	30 minutes
Minimum Airport Classification	B-II
Tier 1 Performance Target	95 percent
Tier 2 Performance Target	100 percent

As described previously, the statewide travel demand model is the analytical tool used to determine the proximity of airports to tourism/convention centers. That tool was used to determine the service area coverage of all candidate airports and the number and size of tourism/convention centers served by those airports. In summary, tourism/convention centers in Michigan should be served within 30 minutes surface travel time by airports in the B-II classification. Those airports needed to respond to 95 percent of the tourism/convention centers are included in Tier 1; with the airports needed to respond to 100 percent of the tourism/convention centers included in Tier 2.

System Recommendation: To the extent possible, airports that were already developed to the proper minimum airport classification were selected for inclusion in the tourism/convention center alternative. Additional airports to be included in Tier 1 were selected based on a combination of tourism/convention center size, remoteness from a previously included airport, and the number of additional tourism/convention centers that would be served. Among the 39 airports included in Tier 1 for tourism/convention centers are five airports that would require a reclassification to the B-II category. These airports are...

- ☐ Baraga, new
- ☐ Frankfort, Dow Memorial Airport
- ☐ Munising, Hanley Field
- ☐ Rogers City, Presque Isle County/Rogers City Airport
- ☐ St. Ignace, Mackinac County Airport

The other 34 airports currently meet the B-II airport classification standard. All 39 Tier 1 airports are shown in Map 7 and identified in Table 21.

Map 7

Tourism/Convention Centers: Tier 1 Airport System

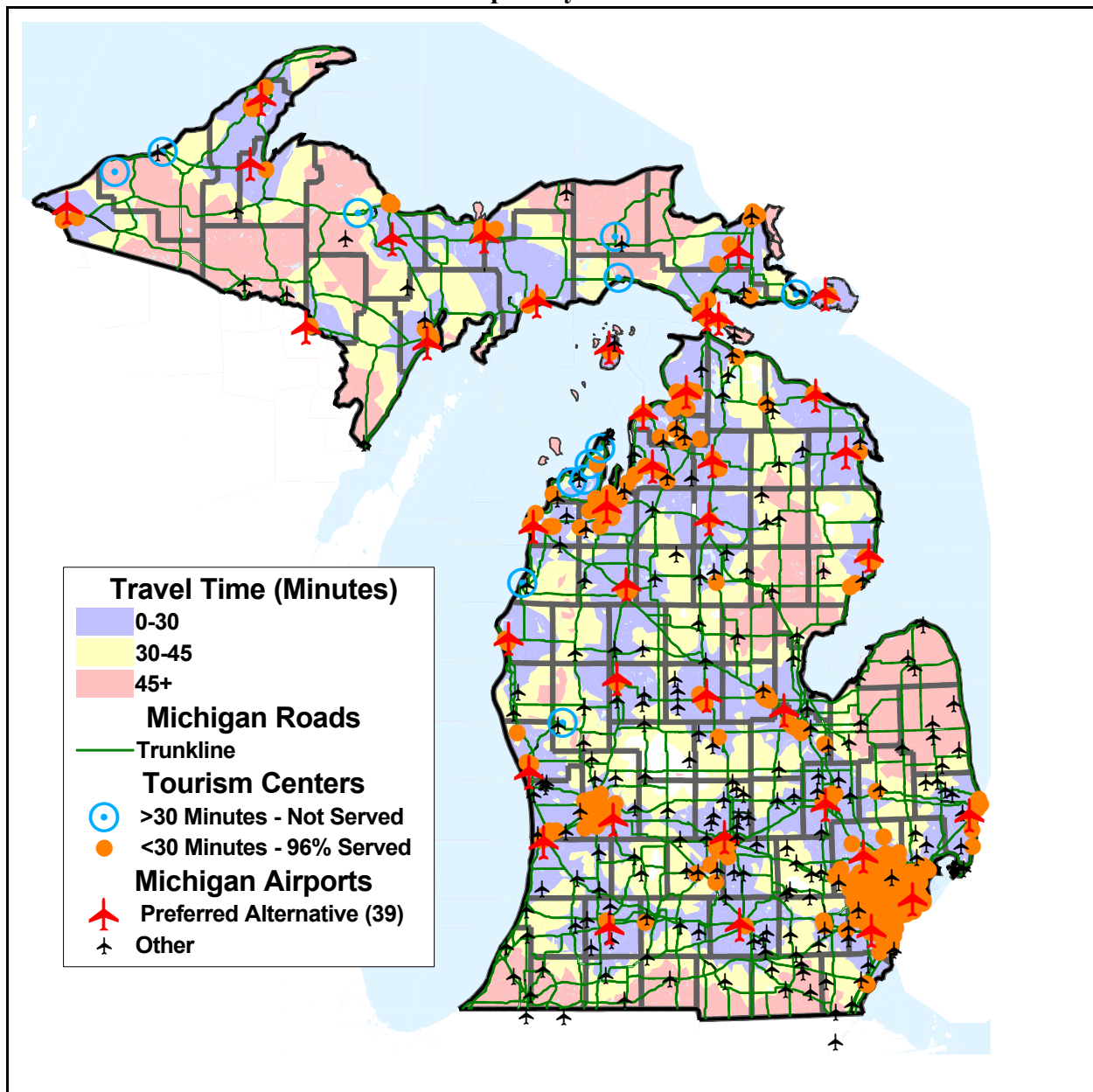


Table 21 Tier 1 Airport System: Tourism/Convention Centers Minimum Airport Classification Standard: B-II		
City	Airport	Current Class
Alpena	Alpena County Regional	D-III
Baraga	new	
Beaver Island	Beaver Island	B-II
Bellaire	Antrim County	C-II
Big Rapids	Roben-Hood	B-II
Cadillac	Wexford County	C-II
Charlevoix	Charlevoix Municipal	B-II
Detroit	Detroit City	C-III
Detroit	Detroit Metro Wayne County	D-III
Drummond Island	Drummond Island	B-II
Escanaba	Delta County	D-III
Flint	Bishop International	D-III
Frankfort	Dow Memorial	B-I
Gaylord	Otsego County	C-III
Grand Rapids	Kent County International	D-III
Grayling	Grayling Army Airfield	C-II
Hancock	Houghton County Memorial	D-III
Harbor Springs	Harbor Springs Municipal	B-II
Holland	Tulip City	C-III
Iron Mountain	Ford	D-III
Ironwood	Gogebic-Iron County	D-III
Jackson	Jackson County-Reynolds	C-III
Kalamazoo	Kalamazoo/Battle Creek Intl.	D-III
Lansing	Capital City	D-III
Ludington	Mason County	B-II
Mackinac Island	Mackinac Island	B-II
Manistique	Schoolcraft County	C-II
Marquette	Sawyer	D-III
Mt. Pleasant	Mt. Pleasant Municipal	C-II
Munising	Hanley Field	A-I
Muskegon	Muskegon County	D-III
Oscoda	Osdoda-Wurtsmith	D-III
Pontiac	Oakland County International	D-III
Port Huron	St. Clair County International	C-III
Rogers City	Presque Isle County/Rogers City	B-I
Saginaw	M B S International	D-III
Saint Ignace	Mackinac County	B-I
Sault Ste. Marie	Chippewa County International	D-III
Traverse City	Cherry Capital	D-III

Those airports required to achieve a 100 percent tourism/convention center coverage are designated in Tier 2 and include the ten airports

identified in Table 22. Of these airports, six do not currently meet the B-II Airport Classification for tourism/convention centers.

Table 22 Tier 2 Airport System: Tourism/Convention Centers Minimum Airport Classification Standard: B-II		
City	Airport	Current Class
Caseville	new	
Clare	Clare Municipal	B-I
Fremont	Fremont Municipal	C-II
Manistee	Manistee County-Blacker	C-II
Newberry	Luce County	B-I
Northport	Woolsey Memorial	A-I
Ontonagon	Ontonagon County	B-I
Paradise	new	
South Haven	South Haven Area Regional	B-II
Sault Ste. Marie	Sault Ste. Marie Muni-Sanderson	C-II

Goal Achievement Summary: The system of airports identified in Table 23 results in the following level of performance achievement.

Table 23 Goal Achievement Summary: Tourism/Convention Centers	
Number of Tier 1 B-II Airports	39
Tourism/Convention Centers Served (percent)	96
Number of Tier 2 Airports	10
Tourism/Convention Centers Served (percent)	99

The 39 airports designated for inclusion in Tier 1 meet the target performance objective of 95 percent. The ten airports included in Tier 2 results in 99 percent of tourism/convention centers being served. All of the tourism/convention not served in Tier 1 or Tier 2 are marginally outside of the 30 minute surface travel time. No tourism/convention center in the state is more than 35 minutes from an airport designated in either Tier 1 or Tier 2.

General Population Access

Goal: Preserve/develop the system of airports necessary to respond to essential/critical aviation needs of the general population.

Background: A basic level of air transportation service to all Michigan residents is important.

System Standards: General population access system standards relate to proximity of an airport to the general population, the minimum classification of airport needed to adequately respond to general population access, and the performance target percent for general population access to be served by those airports. Table 24 summarizes the system standards for general population access.

Table 24 System Standards: General Population Access	
Surface Travel Time	45 minutes
Minimum Airport Classification	B-II
Tier 1 Performance Target	95 percent
Tier 2 Performance Target	100 percent

As described previously, the statewide travel demand model is the analytical tool used to determine the proximity of airports to the general population. That tool was used to determine the service area coverage of all candidate airports and the population served by those airports. In summary, general population access in Michigan is provided by 45 minutes surface travel time by airports in the B-II classification. Those airports needed to respond to 95 percent of the general population access are included in Tier 1; with the airports needed to respond to 100 percent of the general population access included in Tier 2.

System Recommendation: To the extent possible, airports that were already developed to the proper minimum airport classification were selected for inclusion in the general population access alternative. Additional airports to be included in Tier 1 were selected based on a combination of remoteness from a previously included airport, and the amount of additional population that would be served. None of the 28 airports included in Tier 1 for general population access would require a reclassification to the B-II category. The 28 airports included in Tier 1 for general population access are shown in Map 8

and identified in Table 25.

Map 8

General Population Access: Tier 1 Airport System

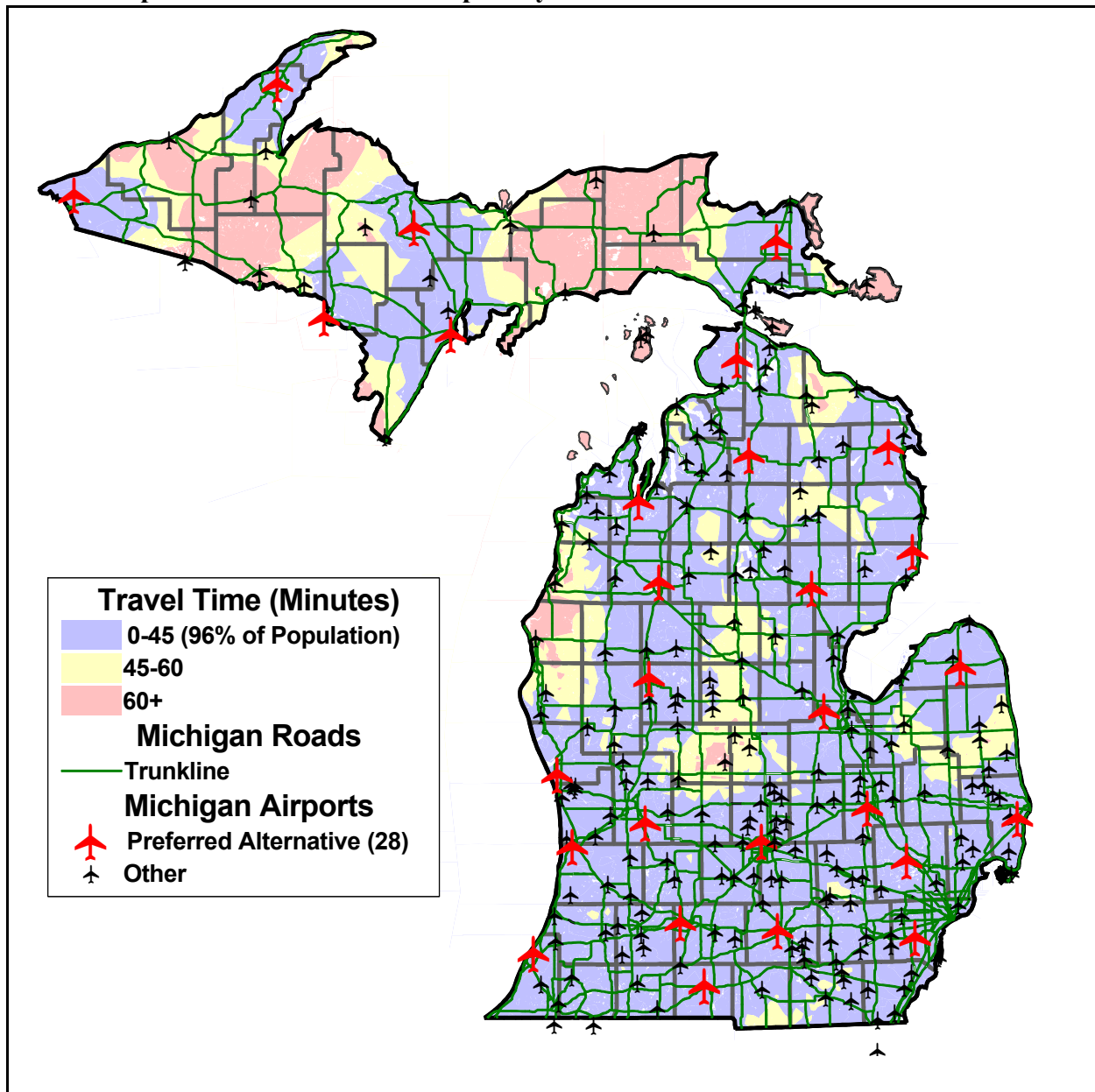


Table 25 Tier 1 Airport System: General Population Access Minimum Airport Classification Standard: B-II		
City	Airport	Current Class
Alpena	Alpena County Regional	D-III
Bad Axe	Huron County Memorial	B-II
Battle Creek	W. K. Kellogg	D-III
Benton Harbor	Southwest Michigan Regional	C-III
Big Rapids	Roben-Hood	B-II
Cadillac	Wexford County	C-II
Coldwater	Branch County Memorial	B-II
Detroit	Detroit Metro Wayne County	D-III
Escanaba	Delta County	D-III
Flint	Bishop International	D-III
Gaylord	Otsego County	C-III
Grand Rapids	Kent County International	D-III
Hancock	Houghton County Memorial	D-III
Holland	Tulip City	C-III
Iron Mountain	Ford	D-III
Ironwood	Gogebic-Iron County	D-III
Jackson	Jackson County-Reynolds	C-III
Lansing	Capital City	D-III
Marquette	Sawyer	D-III
Muskegon	Muskegon County	D-III
Oscoda	Osdoda-Wurtsmith	D-III
Pellston	Pellston Regional of Emmet County	D-III
Pontiac	Oakland County International	D-III
Port Huron	St. Clair County International	C-III
Saginaw	M B S International	D-III
Sault Ste. Marie	Chippewa County International	D-III
Traverse City	Cherry Capital	D-III
West Branch	West Branch Community	C-II

Those airports required to achieve a 100 percent general population coverage are designated in Tier 2 and include the four airports identified in Table 26. All of these airports currently meet the B-II Airport Classification for service to the general population.

Table 26 Tier 2 Airport System: General Population Access Minimum Airport Classification Standard: B-II		
City	Airport	Current Class
Manistee	Manistee County-Blacker	C-II
Manistique	Schoolcraft County	C-II
Marlette	Marlette Township	B-II
Mt. Pleasant	Mt. Pleasant Municipal	C-II

Goal Achievement Summary: The system of airports identified in Table 27 results in the following level of performance achievement.

Table 27 Goal Achievement Summary: General Population Access	
Number of Tier 1 B-II Airports	28
General Population Served (percent)	96
Number of Tier 2 Airports	4
General Population Served (percent)	99

The 28 airports designated for inclusion in Tier 1 meet the target performance objective of 95 percent. The four airports included in Tier 2 results in 99 percent of the state's population being served. By extending the service area coverage to 60 minutes rather than 45 minutes virtually all Michigan residents would be have access to an airport included in either Tier 1 or Tier 2.

Land Area Coverage

Goal: Preserve and develop the system of airports necessary to respond to provide basic land area coverage.

Background: General aviation pilots operating their aircraft in Michigan should have access to an airport with a paved runway within 30 miles in the event of a pilot or passenger emergency; or an aircraft malfunction. These airports provide a network of facilities that are reachable in many emergency situations. Airports located in adjacent states near Michigan borders were included in determining land area coverage percentages.

System Standards: Unlike many of the previous system standards where surface travel time is a key variable, with land area coverage the system standard relates uses a 30 mile radius as a key variable. As with the other system goals the target for goal achievement is 95 percent of land area coverage in Tier 1 and 100 percent in Tier 2..

Table 28 System Standards: Land Area Coverage	
Surface Travel Distance	30 miles
Minimum Airport Classification	B-I
Tier 1 Performance Target	95 percent
Tier 2 Performance Target	100 percent

System Recommendation: To the extent possible, airports that were already developed to the proper minimum airport classification were selected for inclusion in the land area coverage alternative. Additional airports to be included in Tier 1 were selected based on a combination of remoteness from a previously included airport. Among the 50 airports included in Tier 1 for land area coverage are two airports that would require a reclassification to the B-I category. These airports are...

- ☐ Baraga, new
- ☐ Munising, Hanley Field

The other 48 airports currently meet the B-I airport classification standard. All 50 Tier 1 airports are shown in Map 9 and identified in Table 29.

Map 9

Land Area Coverage: Tier 1 Airport System

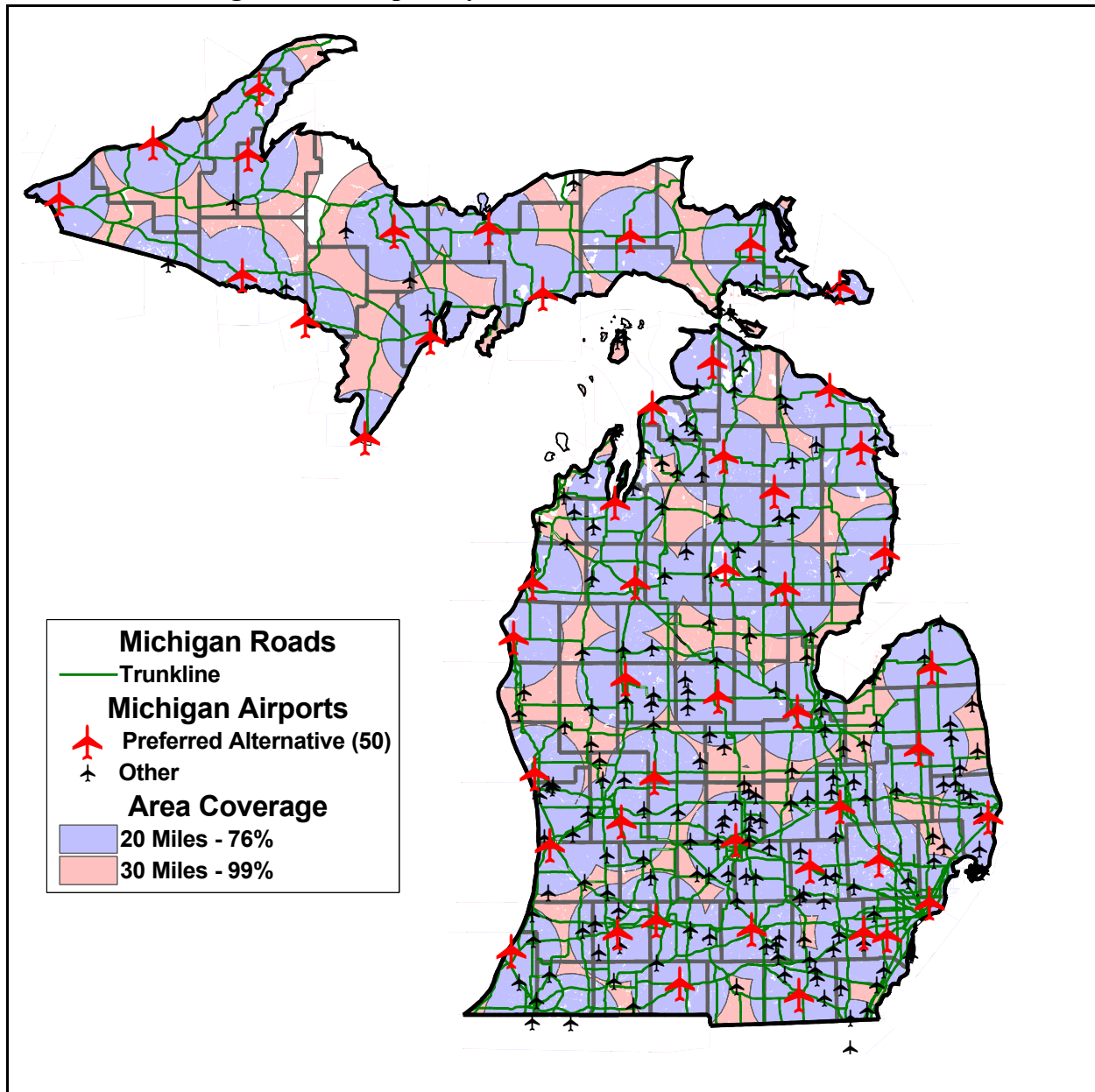


Table 29
Tier 1 Airport System: Land Area Coverage
Minimum Airport Classification Standard: B-I

City	Airport	Current Class
Adrian	Lenawee County	B-II
Alpena	Alpena County Regional	D-III
Bad Axe	Huron County Memorial	B-II
Baraga	new	
Battle Creek	W. K. Kellogg	D-III
Benton Harbor	Southwest Michigan Regional	C-III
Big Rapids	Roben-Hood	B-II
Cadillac	Wexford County	C-II
Charlevoix	Charlevoix Municipal	B-II
Coldwater	Branch County Memorial	B-II
Detroit	Detroit City	C-III
Detroit	Detroit Metro Wayne County	D-III
Detroit	Willow Run	D-III
Drummond Island	Drummond Island	B-II
Escanaba	Delta County	D-III
Flint	Bishop International	D-III
Gaylord	Otsego County	C-III
Grand Rapids	Kent County International	D-III
Greenville	Greenville Municipal	B-II
Hancock	Houghton County Memorial	D-III
Holland	Tulip City	C-III
Houghton Lake	Roscommon County	B-II
Howell	Livingston County	B-II
Iron Mountain	Ford	D-III
Ironwood	Gogebic-Iron County	D-III
Jackson	Jackson County-Reynolds	C-III
Kalamazoo	Kalamazoo/Battle Creek Inter	D-III
Lansing	Capital City	D-III
Lewiston	Garland	B-II
Ludington	Mason County	B-II
Manistee	Manistee County-Blacker	C-II
Manistique	Schoolcraft County	C-II
Marlette	Marlette Township	B-II
Marquette	Sawyer	D-III
Menominee	Menominee-Marinette Twin City	C-III
Mt. Pleasant	Mt. Pleasant Municipal	C-II
Munising	Hanley Field	A-I
Muskegon	Muskegon County	D-III
Newberry	Luce County	B-I
Ontonagon	Ontonagon County	B-I
Oscoda	Osdoda-Wurtsmith	D-III
Pellston	Pellston Regional of Emmet County	D-III

Pontiac	Oakland County International	D-III
Port Huron	St. Clair County International	C-III
Rogers City	Presque Isle County/Rogers City	B-I
Saginaw	M B S International	D-III
Sault Ste. Marie	Chippewa County International	D-III
Stambaugh	Stambaugh	B-I
Traverse City	Cherry Capital	D-III
West Branch	West Branch Community	C-II

Goal Achievement Summary: The system of airports identified in Table 29 results in the following level of performance achievement.

Table 30 Goal Achievement Summary: Land Area Coverage	
Number of Tier 1 B-I Airports	50
Land Area Covered (percent)	98
Number of Tier 2 Airports	0
Land Area Covered (percent)	98

The 50 airports designated for inclusion in Tier 1 meet the target performance objective of 95 percent. No additional airports are included in Tier 2 since the practical maximum coverage has been attained by those airports selected in Tier 1. By extending the service area coverage to 40 miles rather than 30 miles virtually all Michigan land areas would have an airport with a paved runway within the coverage area.

Preserve Regional Capacity

Goal: Preserve adequate airport capacity in each region of the state to assure continued effective air transportation.

Background: There are 236 public use airports currently in operation throughout Michigan. At any given time several of these facilities are under pressure from local officials and/or developers to be closed and converted to an alternate use. These pressures are most often exerted on small general aviation airports operating in or adjacent to their service communities. This is a particular concern to airports operating in Southeast Michigan where additional airport closures would threaten overall regional capacity.

From a regional capacity perspective, airports need to continue in public use when...

- ☐ The airport is the only public use facility serving the area and should be preserved because of the access it provides to the community and access it provides the community to outside services.
- ☐ The airport is in an area where regional aircraft capacity is stressed and the facility needs to be preserved to assure continued regional capacity.
- ☐ The airport functions as a reliever to a large airport by allowing lower performance aircraft to utilize the smaller airport rather than the larger airport where the number of operations by high performance aircraft would be inhibited by the smaller aircraft. At very busy airports, a mix of slow aircraft and faster, heavier aircraft severely affects airport operational capacity. Preservation of a smaller airport that would provide an alternative to a very busy airport would benefit both types of aircraft operations.

In Southeast Michigan regional demand currently threatens regional capacity. Recent airport closures and the prospect of additional airport closures continue to put undue stress on regional aviation capacity.

System Standards: Using results of the based aircraft forecast presented in a previous chapter the demand and capacity requirements for each MDOT region are presented in Table 31. By setting the

Table 31 Regional Capacity Requirements			
Region	2020 Based Aircraft	Capacity Requirement at...	
		125%	150%
Bay	1,023	1,279	1,535
Grand	879	1,099	1,319
Metro	2,290	2,863	3,435
North	752	940	1,128
Southwest	815	1,019	1,223
Superior	317	396	476
University	1,320	1,650	1,980

Tier 1 threshold at 125 percent of forecasted demand and the Tier 2 capacity threshold at 150 percent of demand it was felt that the system would be able to adequately respond to future needs.

Table 32 System Standards: Preserve Regional Capacity	
Within Each Region Aircraft Storage Capacity Should Exceed Demand	
Minimum Airport Classification	B-I
Tier 1 Performance Target (Capacity/Demand)	125 percent
Tier 2 Performance Target (Capacity/Demand)	150 percent

System Recommendation: To the extent possible, airports that were already developed to the proper minimum airport classification were selected for inclusion in the regional capacity alternative. The Metro region is limited in its ability to respond to future capacity needs. Consequently, a number of airports located in counties adjacent to the Metro region were selected for inclusion in this alternative.

All of the 65 airports included in Tier 1 for regional capacity are currently at the B-I classification or higher. These airports are identified in Map 10 and listed in Table 33.

Map 10

Regional Capacity: Tier 1 Airport System

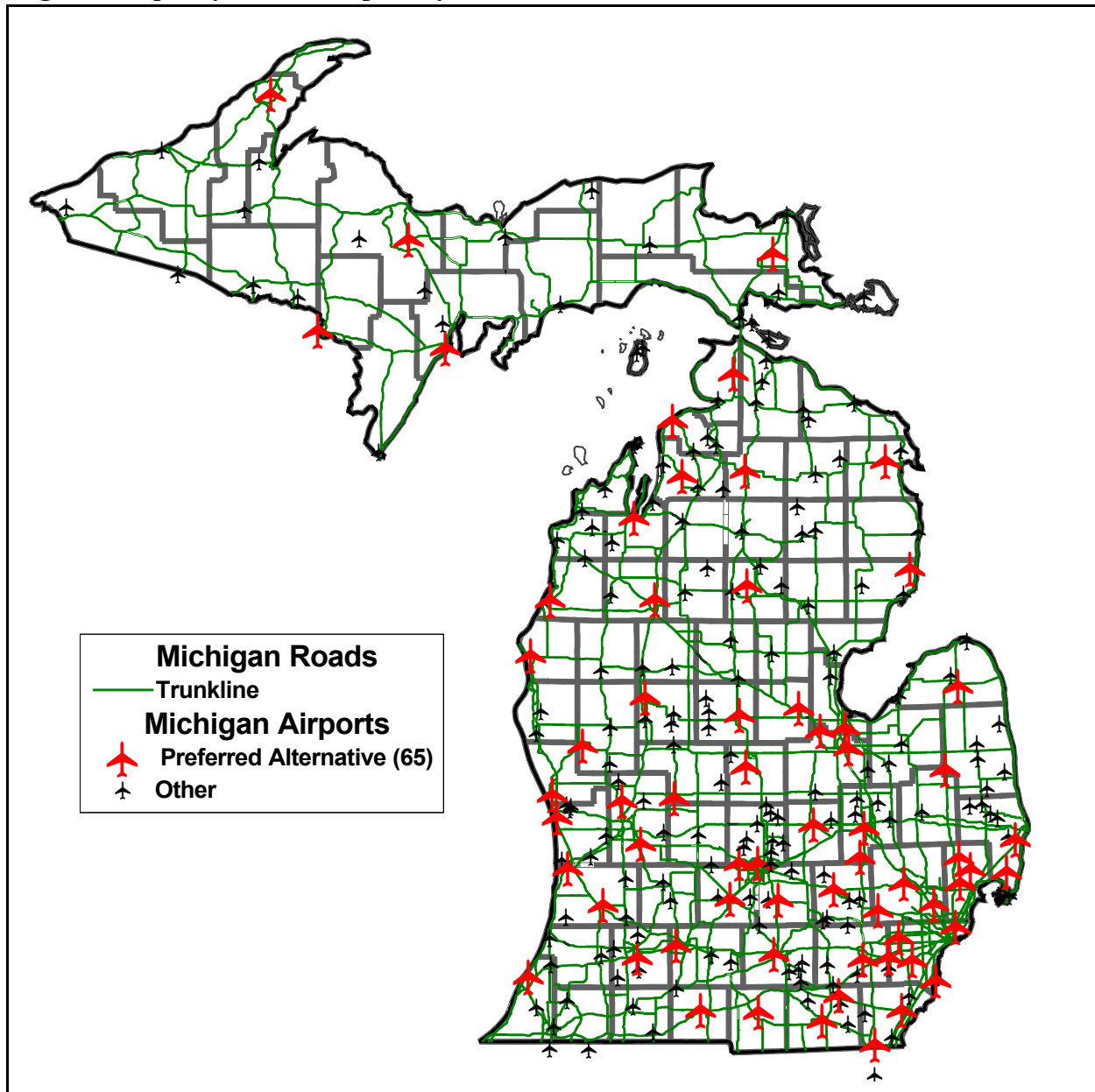


Table 33
Tier 1 Airport System: Regional Capacity
Minimum Airport Classification Standard: B-I

City	Airport	Current Class
Adrian	Lenawee County	B-II
Allegan	Padgham Field	B-II
Alma	Gratiot Community	B-II
Alpena	Alpena County Regional	D-III
Ann Arbor	Ann Arbor Municipal	B-II
Bad Axe	Huron County Memorial	B-II
Battle Creek	W. K. Kellogg	D-III
Bay City	James Clements	B-II
Bellaire	Antrim County	C-II
Benton Harbor	Southwest Michigan Regional	C-III
Big Rapids	Roben-Hood	B-II
Cadillac	Wexford County	C-II
Charlevoix	Charlevoix Municipal	B-II
Charlotte	Fitch H. Beach Municipal	B-II
Coldwater	Branch County Memorial	B-II
Detroit	Berz-Macomb	B-II
Detroit	Detroit City	C-III
Detroit	Grosse Ile Municipal	C-II
Detroit	Detroit Metro Wayne County	D-III
Detroit	Willow Run	D-III
Escanaba	Delta County	D-III
Flint	Bishop International	D-III
Fremont	Fremont Municipal	C-II
Gaylord	Otsego County	C-III
Grand Haven	Memorial Airpark	B-II
Grand Ledge	Abrams Municipal	B-II
Grand Rapids	Kent County International	D-III
Greenville	Greenville Municipal	B-II
Hancock	Houghton County Memorial	D-III
Hillsdale	Hillsdale Municipal	B-II
Holland	Tulip City	C-III
Houghton Lake	Roscommon County	B-II
Howell	Livingston County	B-II
Iron Mountain	Ford	D-III
Jackson	Jackson County-Reynolds	C-III
Kalamazoo	Kalamazoo/Battle Creek Inter	D-III
Lambertville	Toledo Suburban	B-II
Lansing	Capital City	D-III
Linden	Price's	B-I
Ludington	Mason County	B-II

Manistee	Manistee County-Blacker	C-II
Marine City	Marine City	B-I
Marlette	Marlette Township	B-II
Marquette	Sawyer	D-III
Mason	Mason Jewett Field	B-II
Midland	Jack Barstow	B-II
Monroe	Monroe Custer	C-II
Mt. Pleasant	Mt. Pleasant Municipal	C-II
Muskegon	Muskegon County	D-III
New Haven	Macomb	B-I
New Hudson	New Hudson	B-I
Oscoda	Oscoda-Wurtsmith	D-III
Owosso	Owosso Community	B-II
Pellston	Pellston Regional of Emmet County	D-III
Plymouth	Canton-Plymouth-Mettetal	B-I
Pontiac	Oakland County International	D-III
Port Huron	St. Clair County International	C-III
Romeo	Romeo	B-II
Saginaw	Harry W. Browne International	C-II
Saginaw	M B S International	D-III
Sault Ste. Marie	Chippewa County International	D-III
Sparta	Sparta	B-I
Tecumseh	Meyers-Diver's	B-I
Traverse City	Cherry Capital	D-III
Troy	Oakland/Troy	B-I

The 16 airports included in Tier 2 are identified in Table 34. These additional facilities are needed to achieve the 150 percent system standard.

Table 34 Tier 2 Airport System: Regional Capacity Minimum Airport Classification Standard: B-I		
City	Airport	Current Class
Atlanta	Atlanta Municipal	B-I
Baldwin	Baldwin Municipal	B-II
Caro	Caro Municipal	B-II
Dowagiac	Dowagiac Municipal	C-II
Evart	Evart Municipal	B-I
Gladwin	Gladwin Zettel Memorial	B-II
Grayling	Grayling Army Airfield	C-II
Ionia	Ionia County	B-II
Jenison	Riverview	B-I
Lakeview	Lakeview-Griffith Field	B-I
Marshall	Brooks Field	B-I
Sturgis	Kirsch Municipal	C-II
Three Rivers	Three Rivers Municipal, Dr Haines	B-I
West Branch	West Branch Community	C-II
White Cloud	White Cloud	B-I
Zeeland	Ottawa Executive	B-I

Goal Achievement Summary: The system of airports identified in Table 35 results in the following level of performance achievement.

Table 35 Goal Achievement Summary: Regional Capacity	
Number of Tier 1 B-I Airports	65
MDOT Regions Served (percent)	100
Number of Tier 2 Airports	16
MDOT Regions Served (percent)	100

The 65 airports designated for inclusion in Tier 1 result in each of the seven MDOT regions meeting the target of 125 percent of based aircraft demand. The 16 additional airports included in Tier 2 results in each of the regions meeting the target of 150 percent of based aircraft demand.

Serve Isolated Areas

Goal: Support airports capable of providing essential transportation services during those times of the year when other transportation modes are unavailable to seasonally isolated areas.

Background: In 1996 the State Transportation Commission and the Michigan Aeronautics Commission adopted an *Island Transportation Policy*. This policy indicated that year round air access between the mainland and each of the populated Great Lakes Islands that were seasonally isolated due to weather conditions was important. Seven islands meet this criteria – Beaver, Bois Blanc, Drummond, Harsens, Mackinac, Neebish, and Sugar islands.

System Standards: A year round airport with a paved primary runway is the preferred facility to provide the necessary all weather link to the mainland. Recognizing that not all islands are capable of developing an appropriate airport facility, in some instances a helipad can be developed to provide the necessary mainland link.

Table 36	
System Standards: Isolated Areas	
Surface Travel Time	on the island
Minimum Airport Classification	B-I or Heliport
Tier 1 Performance Target	100 percent

Recommended System: Three of the seven islands currently have an appropriate airport facility – Beaver, Drummond, and Mackinac islands. Two additional islands, Bois Blanc and Harsens, have airports with turf runways that could be reclassified to B-I. The remaining two islands, Neebish and Sugar, do not have a public use airport and given severe physical constraints would be candidates for development of heliports.

Table 37 Tier 1 Airport System: Isolated Areas Minimum Airport Classification Standard: B-I or Heliport		
Island	Airport	Current Class
Beaver	Beaver Island	B-II
Drummond	Drummond Island	B-II
Harsens	Harsens Island	A-I
Mackinac	Mackinac Island	B-II
Neebish	new	Heliport
Bois Blanc	Bois Blanc Island	A-I
Sugar	new	Heliport

Goal Achievement Summary: The system of airports identified in Table 38 results in the following level of performance achievement.

Table 38 Goal Achievement Summary: Isolated Areas	
Number of Tier 1 B-I Airports or Helipads	7
Islands Served (percent)	100

The five airports and two helipads designated for inclusion in Tier 1 result in each of the seven seasonally isolated populated islands being served.

Goal Achievement Summary

Table 39 provides a summary of how the recommended system responds to each of the seven MASP system goals. In each case the recommended system meets or exceeds the target goal for Tier 1 airports. The Tier 1 target for each of the first five system goals is 95 percent. For Regional Capacity and Isolated Areas the target is 100 percent.

Although the Tier 2 target of 100 percent is reached for just two of the system goals, the system identified represents a reasonable and practical optimal system in Michigan. Generally, in those instances where the Tier 2 goal is not met, those areas not served are marginally outside of the service area. In some cases it is far more prudent to accept a deficiency than attempt to improve an airport with severe site limitations, or build a new airport in a physically constrained location.

Table 39 Goal Achievement Summary				
Goal	Tier 1		Tier 2	
	Airports	Percent Served	Airports	Percent Served
Population Centers	32	95	10	99+
Business Centers	35	95	15	97
Tourism/Convention Centers	39	96	10	99
General Population Access	28	96	4	99
Land Area Coverage	50	98	0	98
Regional Capacity	65	100	16	100
Isolated Areas	7	100	0	100

System Recommendation Summary

All of the airports designated in Tier 1 for each goal should be developed to their full and appropriate classification. In many cases this means development efforts will focus completing requirements for an airport's current classification. In a limited number of cases system recommendations indicate that an airport should be reclassified to a higher class. Airport development efforts will focus

on meeting the requirements for that higher classification. The 16 Tier 1 airports recommended for reclassification to a higher class are identified in Table 40. Reclassifications to the C-II category are indicated for seven of these airports based on population center and/or business center goals. Reclassifications to the B-II category are recommended for five of these airports based on tourism center and/or general population access goals. The remaining four reclassifications are based on the serve isolated islands goal and are call for either a reclassification to the B-I category or development of a new helipad.

Table 40 System Reclassification Summary			
City	Airport	Current Class	Future Class
Adrian	Lenawee County	B-II	C-II
Bad Axe	Huron County Memorial	B-II	C-II
Baraga	new		B-II
Big Rapids	Roben-Hood	B-II	C-II
Bois Blanc	Bois Blanc Island	A-I	B-I
Charlevoix	Charlevoix Municipal	B-II	C-II
Frankfort	Dow Memorial	B-I	B-II
Greenville	Greenville Municipal	B-II	C-II
Harsens Island	Harsens Island	A-I	B-I
Hillsdale	Hillsdale Municipal	B-II	C-II
Howell	Livingston County	B-II	C-II
Munising	Hanley Field	A-I	B-II
Neebish Island	new		Heliport
Rogers City	Presque Isle County/Rogers City	B-I	B-II
St. Ignace	Mackinac County	B-I	B-II
Sugar Island	new		Heliport

Composite Alternative

The following section identifies the airports that are designated for inclusion in Tier 1, Tier 2, or Tier 3.

Tier 1 Airports

The following table identifies the 88 current or proposed airports that are recommended for inclusion in Tier 1 in response to one or more of the seven system goals.

Table 41 Tier 1 Airport System: Composite Alternative 1=Tier 1 2=Tier 2									
City	Airport	Curr MASP Class	System Goal						
			Pop Cent (C-II)	Bus Cent (C-II)	Tour/ Conv (B-II)	Gen Pop (B-II)	Land Area (B-I)	Reg Cap (B-I)	Isol (B-I)
Adrian	Lenawee County	B-II	1	1			1	1	
Allegan	Padgham Field	B-II						1	
Alma	Gratiot Community	B-II						1	
Alpena	Alpena County Regional	D-III	1	1	1	1	1	1	
Ann Arbor	Ann Arbor Municipal	B-II		2				1	
Bad Axe	Huron County Memorial	B-II		1		1	1	1	
Baraga	new	na			1		1		
Battle Creek	W.K. Kellogg	D-III	1	1		1	1	1	
Bay City	James Clements	B-II						1	
Beaver Island	Beaver Island	B-II			1				1
Bellaire	Antrim County	C-II			1			1	
Benton Harbor	Southwest Michigan Reg.	C-III	1	1		1	1	1	
Big Rapids	Roben-Hood	B-II	2	1	1	1	1	1	
Bois Blanc	Bois Blanc Island	A-I							1
Cadillac	Wexford County	C-II	1	1	1	1	1	1	
Charlevoix	Charlevoix Municipal	B-II		1	1		1	1	
Charlotte	Fitch H. Beach Municipal	B-II						1	
Coldwater	Branch County Memorial	B-II	2	2		1	1	1	

Table 41 Tier 1 Airport System: Composite Alternative 1=Tier 1 2=Tier 2									
City	Airport	Curr MASP Class	System Goal						
			Pop Cent (C-II)	Bus Cent (C-II)	Tour/ Conv (B-II)	Gen Pop (B-II)	Land Area (B-I)	Reg Cap (B-I)	Isol (B-I)
Detroit	Berz-Macomb	B-II						1	
Detroit	Detroit City	C-III	1	1	1		1	1	
Detroit	Grosse Ile Municipal	C-II						1	
Detroit	Detroit Metro Wayne Co.	D-III	1	1	1	1	1	1	
Detroit	Willow Run	D-III	1	1			1	1	
Drummond Island	Drummond Island	B-II			1		1		1
Escanaba	Delta County	D-III	1	1	1	1	1	1	
Flint	Bishop International	D-III	1	1	1	1	1	1	
Frankfort	Dow Memorial	B-I			1				
Fremont	Fremont Municipal	C-II	2	1	2			1	
Gaylord	Otsego County	C-III	1	1	1	1	1	1	
Grand Haven	Memorial Airpark	B-II						1	
Grand Ledge	Abrams Municipal	B-II						1	
Grand Rapids	Kent County International	D-III	1	1	1	1	1	1	
Grayling	Grayling Army Airfield	C-II		1	1			2	
Greenville	Greenville Municipal	B-II	1	1			1	1	
Hancock	Houghton County Mem.	D-III	1	1	1	1	1	1	
Harbor Springs	Harbor Springs Municpal	B-II			1				
Harsen's Island	Harsen's Island	A-I							1
Hillsdale	Hillsdale Municipal	B-II	2	1				1	
Holland	Tulip City	C-III	1	1	1	1	1	1	
Houghton Lake	Roscommon County	B-II					1	1	
Howell	Livingston County	B-II	1	1			1	1	
Iron Mountain	Ford	D-III	1	2	1	1	1	1	
Ironwood	Gogebic-Iron County	D-III	1	2	1	1	1		
Jackson	Jackson County-Reynolds	C-III	1	1	1	1	1	1	
Kalamazoo	Kalamazoo/Battle Creek Int	D-III	1	1	1		1	1	

Table 41 Tier 1 Airport System: Composite Alternative									
1=Tier 1 2=Tier 2									
City	Airport	Curr MASP Class	System Goal						
			Pop Cent (C-II)	Bus Cent (C-II)	Tour/ Conv (B-II)	Gen Pop (B-II)	Land Area (B-I)	Reg Cap (B-I)	Isol (B-I)
Lambertville	Toledo Suburban	B-II						1	
Lansing	Capital City	D-III	1	1	1	1	1	1	
Lewiston	Garland	B-II					1		
Linden	Price's	B-I						1	
Ludington	Mason County	B-II	2		1		1	1	
Mackinac Island	Mackinac Island	B-II			1				1
Manistee	Manistee County-Blacker	C-II	1	1	2	2	1	1	
Manistique	Schoolcraft County	C-II			1	2	1		
Marine City	Marine City	B-I						1	
Marlette	Marlette Township	B-II				2	1	1	
Marquette	Sawyer	D-III	1	1	1	1	1	1	
Mason	Mason Jewett Field	B-II						1	
Menominee	Menominee-Marinette Twin City	C-III	1				1		
Midland	Jack Barstow	B-II						1	
Monroe	Monroe Custer	C-II	2					1	
Mt. Pleasant	Mt. Pleasant Municipal	C-II	1	1	1	2	1	1	
Munising	Hanley Field	A-I			1		1		
Muskegon	Muskegon County	D-III	1	1	1	1	1	1	
Neebish Island	new	na							1
New Haven	Macomb	B-I						1	
New Hudson	New Hudson	B-I						1	
Newberry	Luce County	B-I			2		1		
Ontonagon	Ontonagon County	B-I			2		1		
Oscoda	Osdoda-Wurtsmith	D-III			1	1	1	1	
Owosso	Owosso Community	B-II						1	
Pellston	Pellston Reg of Emmet Co.	D-III	1			1	1	1	

Table 41 Tier 1 Airport System: Composite Alternative 1=Tier 1 2=Tier 2									
City	Airport	Curr MASP Class	System Goal						
			Pop Cent (C-II)	Bus Cent (C-II)	Tour/ Conv (B-II)	Gen Pop (B-II)	Land Area (B-I)	Reg Cap (B-I)	Isol (B-I)
Plymouth	Canton-Plymouth-Mettetal	B-I						1	
Pontiac	Oakland County Intl	D-III	1	1	1	1	1	1	
Port Huron	St. Clair County Intl	C-III	1	1	1	1	1	1	
Rogers City	Presque Isle Co/Rogers City	B-I		2	1		1		
Romeo	Romeo	B-II	2					1	
Saginaw	Harry W. Browne	C-II						1	
Saginaw	M B S International	D-III	1	1	1	1	1	1	
Saint Ignace	Mackinac County	B-I			1				
Sault Ste. Marie	Chippewa County Intl	D-III	1		1	1	1	1	
Sparta	Sparta	B-I	2	2				1	
Stambaugh	Stambaugh	B-I					1		
Sturgis	Kirsch Municipal	C-II	2	1				2	
Sugar Island	new	na							1
Tecumseh	Meyers-Diver's	B-I						1	
Traverse City	Cherry Capital	D-III	1	1	1	1	1	1	
Troy	Oakland/Troy	B-I						1	
West Branch	West Branch Community	C-II		1		1	1	2	

Tier 2 Airports

The following table identifies the 25 airports that are recommended for inclusion in Tier 2. None of these airports were identified for inclusion in Tier 1 for any of the seven system goals.

Table 42

Tier 2 Airport System: Composite Alternative

2=Tier 2

City	Airport	Curr MASP Class	System Goal						
			Pop Cent (C-II)	Bus Cent (C-II)	Tour/ Conv (B-II)	Gen Pop (B-II)	Land Area (B-I)	Reg Cap (B-I)	Isol (B-I)
Atlanta	Atlanta Municipal	B-I						2	
Baldwin	Baldwin Municipal	B-II						2	
Caro	Caro Municipal	B-II		2				2	
Caseville	new	na			2				
Cheboygan	Cheboygan City-County	B-II		2					
Clare	Clare Municipal	B-I			2				
Dowagiac	Dowagiac Municipal	C-II						2	
Evart	Evart Municipal	B-I						2	
Gladwin	Gladwin Zettel Memorial	B-II		2				2	
Hart-Shelby	Oceana County	B-I		2					
Hastings	Hastings City/Barry County	B-II	2	2					
Ionia	Ionia County	B-II						2	
Jenison	Riverview	B-I						2	
Lakeview	Lakeview-Griffith	B-I						2	
Lapeer	DuPont-Lapeer	B-I		2					
Marshall	Brooks Field	B-I						2	
Niles	Jerry Tyler Memorial	B-II		2					
Northport	Woolsey Memorial	A-I			2				
Paradise	new	na			2				
Sandusky	Sandusky City	B-I		2					
Sault Ste. Marie	Sault Ste. Marie Muni-Sanderson	C-II		2	2				
South Haven	South Haven Area Regional	B-II			2				
Three Rivers	Three Rivers Municipal, Dr. Haines	B-I						2	
White Cloud	White Cloud	B-I						2	
Zeeland	Ottawa Executive	B-I						2	

Tier 3 Airports

The remaining public use airports are all designated for inclusion in Tier 3. Almost all of these airports are either privately owned and/or have turf primary runways.